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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,307	09/18/2006	Ping Zhou	36-2007	7454

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EXAMINER
TIEU, BINH KIEN

ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/593,307	ZHOU ET AL.	
	Examiner	Art Unit	
	BINH K. TIEU	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 18-32* is/are rejected.

7)☐ Claim(s) *16 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/17/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 15, 20-21, 23-25, 27, 31 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudinsky et al. (US 6,741,676).

Regarding claims 1, 23 and 31, Rudinsky et al. ("Rudinsky") teaches an apparatus, as shown in figure 1, for testing an electrical transmission line such as subscriber lines 12-14 as shown in figure 1, and for detecting faults such as a fault in a joint or split pair connecting sections of an electrical transmission line together. Rudinsky further teaches the system comprising a measurement unit 40 performs electrical measurements for detecting line faults. The measurement unit 40 is controlled by computer 46, which selects the types of measurements performed on the subscriber lines 12-14 to test. The computer 46 sends control signals to the measurement unit 40 and receives results from it. The measurement unit further comprises devices 41 and 43 for performing on one-ended electrical measurements on selected lines 12-14. The device 41 performs measurements on tip and ring wires of a selected subscriber line 12-14 in a common mode configuration and produces results useful for detecting split pairs. The device

43 can measure admittances of the tip and ring wires of a selected line 12-14 either separately or together and produces data useful for determining the specific physical line structure (col.3, line 34 through col.4, line 18). In figure 2A, the device 41 has a voltage source 54 for driving the tip and ring wires T, R of the subscriber line 12-14 under test. The voltage source 54 connects to one side of resistors R1 and R2. The second side of resistors R1 and R2 are connected to the respective tip and ring wires T, R of the subscriber line 12-14 under test. The values of resistors R1 and R2 are the same. The voltage source 54 also induces equal voltages V1 and V2 between each resistor R1 and R2 as well as currents It and Ir which flow through R1 and R2, respectively. It is noted that the values of voltages V1 and V2 are the same as well as currents It and Ir are also the same because the values of resistors R1 and R2 are the same (col.4, line 48 through col.5, line 5). Rudinsky further teaches an equivalent circuit 55 in figure 2A. Rudinsky further teaches two voltmeters VM1 and VM2 used to measure voltages as well as currents on the tip T and ring R wires of subscriber lines 12-14 for differences in impedances as well as differences in currents which caused by faults of split pairs, resistive imbalances, etc. (see col.5, line 10 through col.6, line 10).

Regarding claims 2 and 24, note the currents I sub T and I sub R in figure 2A (col.5, lines 19-21).

Regarding claim 15, note currents It and Ir, in figure 2A or 2B, which each flows in different directions through R1 and R2, respectively. The two voltmeters VM1 and VM2 used to measure the currents It and Ir on the tip T and ring R wires of subscriber lines 12-14 for differences in differences in currents which caused by faults of split pairs (col.5, lines 6-9 and lines 19-20).

Regarding claim 20, Rudinsky further teaches limitations of the claim in col.6, lines 4-10 and lines 35-52.

Regarding claim 21, Rudinsky further teaches limitations of the claim in col.5, lines 6-53.

Regarding claim 22, Rudinsky further teaches the endpoints are endpoints of cable 22, as shown in figure 1, which one endpoint is connected to the side of switch 15 and the other endpoint is connected to subscriber equipment, i.e., Modem /Telephone 16-18.

Regarding claims 25 and 27, note the subscriber lines 14-16 in figure 1 (col.3, lines 34-52).

Regarding claim 32, Rudinsky further teaches limitations of the claim in col.4, line 48 through col.6, line 52.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 3-14, 16-19, 22, 26 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rudinsky et al. (US 6,741,676) in view of Charland (US. Pat. #: 5,661,776).

Regarding claims 3-4 and 26, Rudinsky further teaches measuring admittances between tip and ring wires. Rudinsky fails to clearly teach connecting said electrical conductors (tip and ring wires) together by applying a resistive load between said conductors. However, Charland teaches an apparatus, i.e., network termination unit (NTU) as shown in figure 2, comprising a plurality of switches to stimulate faults on tip and ring wires of subscriber telephone loop. For examples, termination switch 43 is used for connecting across tip and ring wires conductors of a telephone line having resistive load of 600 ohm or 900 ohm impedance (col.9, lines 37-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of termination switch 43 to connect the tip and ring conductors and to be used as resistive load or a terminal device to the connected tip and ring conductor, as taught by Charland into view of Rudinsky in order to test termination characteristics of the subscriber telephone line.

Regarding claims 5-6, Charland also teaches limitations of the claims in col.9, lines 37-40.

Regarding claim 7, Charland further teaches a short-circuit switch 42 (col.9, lines 35-36). In the short circuit, according to those skilled in the art, the resistance is normally at around zero Ohm.

Regarding claims 8-9, Charland further teaches in figure 1, the tip and ring conductors 12-14 extend in a telephone network between central station and the NTU (see the Abstract).

Regarding claim 10, Charland further teaches limitations of the claim in col.13, lines 39-50.

Regarding claims 11 and 28, Charland further teaches limitations of the claims in col.9, lines 7-12.

Regarding claim 12, the combine of Rudinsky and Charland teaches limitations of the claim. Charland teaches the central station 16 sends command to apply resistive load (col.13, lines 39-50), and Rudinsky teaches the current to be applied by device 41 at the switch 15, figure 1.

Regarding claims 13-14 and 29-30, Charland also teaches applying an electric current at said customer's premises (col.11, line 60 through col.12, line 10).

Regarding claims 18-19, Rudinsky further teaches limitations of the claims in col.5, lines 17-21.

Allowable Subject Matter

5. Claims 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

As noted above, Rudinsky teaches the apparatus and method for detecting faults on the

split pairs or joints caused imbalance impedance on the telephone line. Rudinsky fails to teach the feature of detecting deterioration (condition) of said joint by detecting a change in electrical resistance greater than a predetermined threshold, as recited in the dependent claim 16. Claim 17 depends on claim 16; claim 17 is objected with same reasons in claims 16.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The US Pat. No. 6,385,297 (Bauer) also teaches the same apparatus and method in the Rudinsky et al. applied above.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh K. Tieu whose telephone number is (571) 272-7510 and E-mail address: BINH.TIEU@USPTO.GOV.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz, can be reached on (571) 272-7499 and **IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL CUSTOMER SERVICE FOR THE SUBSTITUTIONS OR COPIES**.

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/**BINH K. TIEU**/
Primary Examiner
Technology Division 2614

Date: March 2008